

TEST ANXIETY AND ACADEMIC ACHIEVEMENT OF STUDENTS IN SENIOR SECONDARY SCHOOLS IN ESAN SOUTH EAST LOCAL GOVERNMENT AREA, EDO STATE

BY

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Abstract

The study examined test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State. Specifically, the study sought to investigate the: direction of relationship (positive/negative), magnitude of relationship (strong, moderate or weak) and relevance of relationship (significant or insignificant) between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State. This study covered a population of 1702 Senior Secondary School one (SSS 1) students in the 18s senior secondary schools in Esan South East Local Government Areas. A sample size of 170 Senior Secondary School One students representing ten percent (10%) was drawn using the simple random sampling technique. This study applied the correlational research design. The instrument was subjected to the split-half reliability test and a reliability coefficient of 0.78 was obtained. Data collected were analysed with the use of the Pearson Product Moment Correlation Coefficient (PPMCC) technique. Result showed that there is a moderate, negative (inverse) and significant relationship between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State. The result showed that there is a moderate, positive and significant relationship between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State. It is recommended that school guidance counselors should provide their counseling, information, referral and orientation services for students identified to have anxiety concerns prior to a test or an evaluation. This is needed to help them stay well adjusted for improved achievement.

Keywords: Test anxiety, Academic achievement, students and secondary schools

Introduction

Secondary education is the education learners receive after primary but before tertiary education. The National Policy on Education stated succinctly that the broad goals of secondary education shall be to prepare the individual for useful living within the society and for higher education (Federal Republic of Nigeria, 2013). In order to achieve these goals, schools are established as a formal agency of education where students learn the customs and norms of the society for useful living and high performance or achievement. Achievement or performance is the extent of accomplishment on a given task or assignment. For students, it could be restricted to their level of accomplishment in one or more subjects such as English Language and Mathematics as measured by a given criteria in class assignment, projects, continuous assessment and/or examination. These two subjects - English Language and Mathematics are largely recognized as important and offered in all levels of secondary education with the aim of acquainting students to the use of official language of communication and numeracy skills respectively in Nigeria (Federal Republic of Nigeria, 2013). For instance, a minimum of a credit pass in English language at the O/A levels is considered a prerequisite for studying any course in higher institution in Nigeria. On the other hand, a student without a minimum credit pass in Mathematics at the O/A levels may not be admitted to study Economics, Medicine and Surgery, Computer Science and Engineering among others. Hence, English Language and Mathematics are core or cross-cutting subjects offered by all students irrespective of their career division of Arts, Sciences or Commercial.

One of the concerns of stakeholders – parents, teachers, and government among others is the issue of students' low achievement in English Language and Mathematics. Osikomaiya (2013) noted that students' achievement in

English Language and Mathematics had continued to deteriorate at both promotional and external examinations to the great displeasure of parents, teachers, examiners and policy makers. In 2017, for instance only 31.28% of 629,425 students passed with credit in English Language from available West African Examination Council (WAEC) records. The Joint Admission Examination results are also not better either since students' achievement has been continuously poor in West African Senior School Certificate Examination (WASSCE). In 2018 only 38.68% of 626,370 students that sat for the final secondary school examination in English Language had credit pass in English Language. Similarly, only 38.28%, 37.74% and 36.54% passed the May/June Senior Secondary Certificate Examination (WASSCE) in 2016, 2017 and 2018 respectively. In the WASSCE report (2017), the chief examiner in English Language had this to say:

"The students made a lot of grammatical errors while answering their comprehension question. Thus, they did not understand the questions very well which reflected in the answers they gave in the comprehension passage. Their construction were wrong, filled with vague expression, the students could not understand the question, which resulted in the wrong expression and answering they made. Thus, their expression were badly constructed which also deducted some marks from them" (p.6).

Similarly, in the same report for 2017, the chief examiner for Mathematics stated that:

"the students failed to adhere to basic instructions. Many candidates could not even state the appropriate formulas needed to solve some sums while some engaged themselves in mindless computations which express their little understanding of the word problems, graphs and equations" (p.4).

These comments from the WASSCE Chief Examiners' report on students' achievement in English language and Mathematics are a testimony to the poor achievement of students. Among several array of factors, Ndubuaku, Inim, Ndudi, Udo and Abner (2020) submitted that the academic achievement of students could be attributed to test/examination anxiety. Test anxiety is a personal feeling of worry, apprehension, nervousness or uneasiness that occurs when a student encounters test or examination in any form and at any level (Onyeizugbo, 2017). Test anxiety involves five (5) main components: cognitive (state anxiety), distractibility (affective component), behavioural (trait anxiety component), emotionality (worry component), and rumination component. In relation to students' academic achievement, the cognitive or state anxiety component is the mental activity that revolves around the testing situation. It constitutes elements such as thinking about consequences of failure, racing thoughts, negative and worrisome thoughts, problem in recalling facts, difficulty in reading and understanding questions with consequences on students' achievement. Distractibility or affective component of test anxiety refers to the activities an individual or learner engages in to put one's mind off the in-coming test and the consequent discomfort or difficulties encountered that could affect a learner' achievement. Distractibility can come in the form of intentional avoidance and procrastination of academic work that can affect a students' academic achievement. The behavioural (trait anxiety component) involves fidgeting, feeling of restlessness. The emotional component is characterized by tension, fear, apprehension, and nervousness towards test or examinations, which is usually associated with somatic symptoms such as palpitation, nausea, perspiration, headaches, stomach aches, nausea, diarrhea, excessive sweating, rapid heartbeat, dry mouth, and shortness of breath that could affect a students' achievement (Onyeizugbo, 2017). Rumination component in the form of contemplations and reflections by a student to justify why a test or examination is unnecessary can be really harmful in that it could dampen a student's interest for studies, increase their procrastination for academic task and lower their academic motivation for improved achievement.

From the foregoing, one could summarise that anxiety may have some roles to play in the emotional stability of a learner. For instance, learning could be a bit challenging for a poorly motivated student who rarely devotes time for any academic engagement. Achievement or performance of a student may also be hampered when apprehension or anxiety on a test or examination is high. Therefore, this study seeks to investigate how social variables on one hand and personal variables on the otherhand, influence academic achievement of senior secondary school students' in Edo Central Senatorial District.

The influence of test/examination anxiety on students' academic achievement has been investigated among higher education students by scholars in recent times. Okogu, Osah and Umudjere (2019) examined examination anxiety of students in Nigeria higher institutions and its consequences among the students Delta State, Nigeria. The researcher concluded that examination anxiety is a common phenomenon among higher institutions students that result to poor academic achievement among the students Delta State, Nigeria. Balogun, Balogun and Onyencho (2018) investigated the moderating role of achievement motivation in the relationship between test anxiety and academic achievement. The causal comparative design was the design of the study. Results showed that test anxiety had a negative impact on academic achievement public university in Ondo State, Nigeria. Rana and Mahmood (2018) explored the relationship between test anxiety and academic achievement of students at the post graduate level. It was found that a significant negative relationship exists between test /examination anxiety and students' academic achievement in a public sector university in Lahore, Pakistan.

Dawood, Ghadeer, Mitsu, Almutary and Alenezi (2017) explore the relationship between test anxiety and academic achievement among undergraduate nursing students. A descriptive correlation, cross sectional research design was utilized to conduct the current study on a convenience sample of 277 undergraduate nursing students from all academic levels at College of Nursing, King Saud bin Abdul-Aziz University for Health Sciences - Riyadh (KSAU), who gave voluntary consent to participate in the study.. Analysis of data revealed statistically significant negative relationship between test/examination anxiety and undergraduate nursing students' academic achievement in College of Nursing, King Saud bin Abdul-Aziz University for Health Sciences - Riyadh (KSAU). Effiom and Bassey (2018) investigated the relationship between test/examination anxiety and students' academic achievement among secondary school students in Cross River State Nigeria. The findings revealed that, test/examination anxiety and directly significantly influenced academic achievement among secondary school students in Cross River State Nigeria

There have been complaints about the quality of education provided for the Nigerian child over the years, especially within the last two decades (Osikomaiya, 2013; Ndubuaku, et al., 2020). The report given at the end of every year on students' achievement at the Senior Secondary Certificate Examination has continued to record high failure rates. For, instance, the report on the June/July series of Junior Secondary School Certificate Examinations (JSSCE) in English language and Mathematics between 2016 to 2018 shows that the trend of students' academic achievement has not improved. Reports showed that in 2015, only 38.7% of the students' who sat for the SSS had credit pass in five subjects including Mathematics and English Language while in 2016, just 36.81% of the students' who sat for the SSS had credit pass in five subjects including Mathematics and English Language. In 2017, only 36.57% of the students' who sat for the same examination had credit pass in five subjects including Mathematics and English Language and in 2018, a mere 31.28% of the students' who sat for the WAEC examination had credit pass in five subjects including Mathematics and English Language.

The situation is worrisome as stakeholders - concerned citizens, government officials, non-governmental organizations and voluntary agencies have openly lamented the decline in the standard of education provided for the Nigerian child. Many researchers, teachers, parents and government officials have traded blames on low achievement of students and adduced various reasons for it including: teacher incompetence and quality deficiency, parental inadequacies, social and personal related factors among others (Akiri&Ugborugbo, 2016; Ahmad, 2019). Studies on test anxiety and students' achievement or performance have been carried out in other states outside Edo State (Effiom&Bassey, 2018; Ndubuaku, et al., 2020). In Esan South East Local Government Area of Edo State, studies on the relationship between test anxiety and academic achievement are not known to the researcher. This constitutes the knowledge gap this study seeks to fill by answering the following research questions

- 1) What is the direction of relationship (positive/negative) between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State?

- 2) What is the magnitude of relationship (strong, moderate or weak) between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State?
- 3) What is the relevance of relationship (significant or insignificant) between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State?

Hypotheses

The following hypotheses are formulated for the study:

- 1) There is no significant relationship between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State

Methodology

The correlational design was used in this study. Imahe and Uddin (2000) noted that correlational design is concerned with evaluating how two variables are associated in quantitative terms. This research design was employed because this study concerns itself with the extent to which a variable (test anxiety) is related to another (academic achievement or achievement of student). This study covered a population of 1702 Senior Secondary School one (SSS 1) students in the 18s senior secondary schools in Esan South East Local Government Areas. This is based on the 2020 statistics provided by the Post-Primary Education Board (PPEB) Benin City. A sample size of 170 Senior Secondary School One students representing ten percent (10%) of the population was drawn for the study. The simple random sampling technique was used to draw the sample from the population of students in each Local Government Area. The researcher assumes normal distribution in the population characteristics; hence, the choice of ten percent sample size is considered sufficient for this study based on the Central Limit Theorem which supported drawing one tenth (10 percent) of a randomly distributed population as a representative sample (Asika, 1991; Imahe & Uddin, 2000). Table 1 shows details of the population and sample of the study.

Table 1: Population and Sample of the Study

Local Government Area	No. of Schools	Total No. of Senior secondary school one (SSS1) students	Sample drawn
Esan South East	18	1702	170

Source: Post Primary Education Board (PPEB), Benin City, Edo State (2020)

Two instruments were used in this study. The first instrument was adapted from the Test and Examination Anxiety Measure (TEAM) scale developed by Brooks, Alsaifei and Taylor (2015). The TEAM scale was developed to measure test anxiety of undergraduate students on an expected examination in Southeastern United States. The scale was developed to measure dimensionality, reliability, and construct validity of Test and Examination Anxiety under five constructs. The names, item numbers and reliability properties are stated as follows: state anxiety (7 items, $\alpha = .83$); distractibility (6 items, $\alpha = .73$); trait anxiety (4 items, $\alpha = .72$); worry (5 items, $\alpha = .79$); rumination (5 items, $\alpha = .76$). During adaptation, only two items per subscale were selected by the researcher to ensure the item statements are not too much and burdensome for the respondents to fill. The selection of two items per construct yielded a total of 10-item statements. The choice of the two factors were informed by the psychometric details of the scale. For instance, the researcher ensured that the two items selected for each construct were short statements and had a relatively large reliability coefficient and eigen value. In addition to the adaptation and scale domestication, the researcher altered response rating. The original version of AMS had a 5 -point response which is rated 1 for “Uncharacteristics of me” to 5 for “Characteristic of me”. This was changed to the conventional four point likert scale type of Strongly Agree - 4 to Strongly Disagree - 1. Similar with the previous scales, a score of 2.50 was used as the benchmark for determining the measure of students’ test and examination anxiety. This implies that a score of 2.50 or higher will represent high test and examination anxiety while 1 to 2.49 represents a low test and examination anxiety.

For the second instrument, a student’s academic achievement or achievement proforma was used. This proforma helped the researcher to collect raw scores of Senior Secondary School one (SSS1) students in their last Junior Secondary School Certificate Examination (JSSCE) in English Language and Mathematics. JSSCE was used

because of the examination is standardized and recognized with certificate of completion at the Junior Secondary School (JSS) level. The achievement score of students in English Language and Mathematics was used because both subjects are core and prerequisite subjects for taking further courses and subjects in higher levels of education. Hence, the students' academic achievement proforma was used to match students' responses with their average score in English Language and Mathematics. The average academic achievement were scored on a four point rating thus: 60 - 100% (Pass) – 4; 50 – 59% (Average) – 3; 45– 49% (Poor) - 2; 44% and below (Failed) - 1. A mean score of 50% or higher mean was considered a high academic achievement while a mean score of 49% and below was taken otherwise.

To ensure that the instrument measures what it is intended for, two validity techniques - face and content validity was carried out by the researcher. The internal consistency of the instruments was determined with the help of the split-half reliability procedure. To ascertain the reliability of the instrument, a twenty six (26) member pilot study group was set up. The members of the pilot study group were secondary school one students drawn from outside the study area (Esan West LGA). These set of students was administered the instruments to fill and their responses thereafter was collated and split into a set of odd and even numbers. The item responses on odd and even numbers were correlated using a parametric test called the Pearson Product Moment Correlation Coefficient (r) technique. After computation, the Pearson Product Moment Correlation Coefficient (r) produce an r-value of 0.78 (78 percent). The Pearson Product Moment Correlation was used to answer the research questions and test the hypothesis at 0.5 percent significance level (that is, 95 percent confidence level). The Pearson Product Moment Correlation Coefficient statistics can be used to determine the **3s** – sign, strength and significance of a Pearson-r coefficient (Arkkelin, 2014). Therefore, the first 'S'- sign was used to explain the direction of the relationship (positive or negative). The second 'S' which represents strength of the correlation were used to explain the magnitude (weak, moderate or strong) of the relationship between variables in quantitative terms while the last 'S' representing significance of the Pearson-r was used to determine the relevance of the correlational coefficient.

The decision on the significance of the Pearson-r were reached by comparing the p-value (probability value of the correlation coefficient or what is otherwise abbreviated as sig. value) in relation to the predetermined level of significance at which the hypothesis is tested. Therefore, the decision rule for rejecting the null hypothesis is if only the p-value (or sig. value) is less than the level of significance (e.g 0.05 as was used in this study). That is, the $p < 0.05$. Hence, the null hypothesis will be retained when the p-value (or sig. value) is greater than the level of significance (That is, the $p > 0.05$). The two hypotheses were tested at 0.05 level of significance with the aid of the Statistical Package for Social Sciences (SPSS, version 23).

Results

Research Question 1: What is the direction of relationship (positive/negative) between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State?

In answering the question, the Pearson's Product Moment Correlation coefficient (PPMCC) technique was used to determine the relationship between the variables. The sign and magnitude of the coefficient further helped to determine the direction and strength of the relationship between the independent and dependent variable respectively. The results of the analysis are presented in Table 2

Table 2: Analysis on the Direction of Relationship between Test Anxiety and Academic Achievement of students

Variables	n	\bar{X}	S.D	Pearson r-coefficient	Remarks
Test anxiety	170	2.54	.940	-0.610	Negative/inverse relationship
Academic achievement		2.31	.537		

The data in Table 2 showed that the Pearson correlation coefficient of -0.610 has a positive sign. This indicated that there was a negative or inverse relationship between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State. This implies that increase in test anxiety corresponds with decline in academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State.

Research Question 2: What is the magnitude of relationship (strong, moderate or weak) between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State?

Table 3: Analysis on the Magnitude of Relationship between Test Anxiety and Academic Achievement of students

Variables	n	\bar{X}	S.D	Pearson r-coefficient	Remarks
Test anxiety	170	2.54	.940	-0.610	Moderate relationship
Academic achievement		2.31	.537		

Note: Pearson r- coefficient $\pm 0.00 - 0.39 =$ Weak relationship
 Pearson r- coefficient $\pm 0.40 - 0.69 =$ Moderate relationship
 Pearson r- coefficient $\pm 0.70 - 1.00 =$ Strong relationship

The data in Table 3 showed that the mean (\bar{X}) and the standard score (S.D) of the respondents (N=170) were 2.54 and 0.940 for test anxiety and 2.31 and 0.537 for the Academic achievement respectively. The magnitude of the Pearson correlation coefficient of -0.610 fall within the moderate range. Hence, this indicated that there was a moderate and negative relationship between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State.

Hypothesis 1: There is no significant relationship between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State

Table 4: Summary Analysis on Test Anxiety and Academic Achievement of Students in Senior Secondary Schools

Variables	n	\bar{X}	S.D	Pearson r-coefficient	p-value	Remarks
Test anxiety	170	2.54	.940	-0.610**	0.000	Null hypothesis rejected (p<0.05)
Academic achievement		2.31	.537			

****.** Correlation is significant at the 0.05 level since p-value is less than 0.05 level.

Note: Pearson r- coefficient $\pm 0.00 - 0.39 =$ Weak relationship
 Pearson r- coefficient $\pm 0.40 - 0.69 =$ Moderate relationship
 Pearson r- coefficient $\pm 0.70 - 1.00 =$ Strong relationship

The data in Table 3 showed that the mean (\bar{X}) and the standard score (S.D) of the respondents (N=170) were 2.54 and 0.940 for test anxiety and 2.31 and 0.537 for the Academic achievement respectively. The Pearson correlation coefficient of -0.610 was statistically significant (p<0.05). Therefore, the null hypothesis was rejected while the alternate hypothesis was accepted. This indicated that there is a moderate, negative (inverse) and significant relationship between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State.

Discussion

The result shows that there is a moderate, positive and significant relationship between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State. The result agreed with that of Okogu, Osah and Umudjere (2019) who found that examination anxiety is a common phenomenon among higher institutions students that result to poor academic achievement among the students Delta State, Nigeria. The result supported that of Balogun, Balogun and Onyencho (2018) who found that test anxiety had a negative impact on academic achievement public university in Ondo State, Nigeria. The result is in line with that of Rana and Mahmood (2018) who found that a significant negative relationship exists between test/examination anxiety and students' academic achievement in a public sector university in Lahore, Pakistan.

The result is in line with that of Dawood, Ghadeer, Mitsu, Almutary and Alenezi (2017) who found a statistically significant negative relationship between test/examination anxiety and undergraduate nursing students' academic achievement in College of Nursing, King Saud bin Abdul-Aziz University for Health Sciences - Riyadh (KSAU). The result is in consonance with that of Effiom and Bassey (2018) who found that, test/examination anxiety and directly significantly influenced academic achievement among secondary school students in Cross River State Nigeria. The result supported that of Khalid and Hasan (2019) who found that students with high academic achievement have low scores on anxiety and vice versa. The result is in line with that of Chapel, Blanding, Takahashi, Silverstein, Newman, Gubi, and McCann (2017) who found that, a negative and significant association exists between test anxiety and academic achievement.

In the same vein the result agreed with that of Hancock (2017) who found that, when students who are particularly test-anxious are exposed to a highly evaluative assessment environment in their educational institution. The result supported that of Ndirangu, Muola, Kithuka and Nassiuma (2018) who found that teachers do not adequately help students cope with test anxiety. There was no significant relationship ($r = 0.06$) between test/examination anxiety and academic achievement among students in Nyeri district, Kenya. The result agreed with that of Bentil, Donkor, Oti and Adzifome (2020) who found that test/examination anxiety significantly influence students' academic achievement among Junior High School students in the Effutu Municipality.

Conclusion

Based on the result, it is concluded that there is a moderate, negative (inverse) and significant relationship between test anxiety and academic achievement of students in senior secondary schools in Esan South East Local Government Area, Edo State.

Recommendations

Based on the findings, the following recommendations were made:

- 1) School guidance counselors should provide their counseling, information, referral and orientation services for students identified to have anxiety concerns prior to a test or an evaluation. This is needed to help them stay well adjusted for improved achievement.
- 2) A school guidance counselling unit should be established in all public schools for students to have access to school counselling programme for improved achievement.

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